

# A Small Peak at a Peruvian Girl's Projects, from Cusco to NASA

**US Speaker Program**

**STEM Education: Women in Science**

**Peru May 19-27, 2017**

**Jackelynne Silva-Martinez**

Aerospace Engineer

Mission Operations Integration

[www.jackelynne.com](http://www.jackelynne.com)



# Education Timeline

1986

2008

2014

2016



Cusco, Peru



MAE



MAS-HF



MASE

**Cusco:**

Colegio Clorinda Matto de Turner  
Colegio Maria de la Merced  
UNSAAC

**Arequipa:**

Colegio Maria Auxiliadora

**Lima:**

Colegio Estados Unidos  
UNI



EGMT

2012



SSP

2015



NJ, USA  
2002

# Research Work

- Human Factors in Aerospace Systems
  - Human-Systems Integration: Minimizing Human Error across a Mission's Lifecycle
- Telemedicine in Space
  - Remotely Guided Sonography for Long Term Space Missions
- Planetary Defense
  - Project Manager, 34 members from 17 different countries with a 6 weeks timeline
- Lunar Exploration Architectures
  - Trade analysis of SpaceX Falcon Heavy and SLS comparison with Orion as the crew vehicle based on balanced mass, cost, and reliability
- Collaborative Aerospace Life Cycle Systems Engineering Program
- Lean Processes
- Space Elevator Climber
- Reliability of Lunar Bases
- Bone-Mechanics

# Work Experience

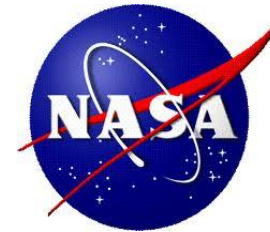
2005



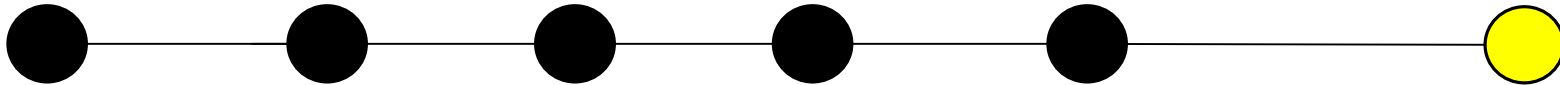
2012



2015-Present



- Paterson Board of Education
- Easy Pickings
- UCEDA
- PCCC



2003



2007-2011



2014





# Lockheed Martin

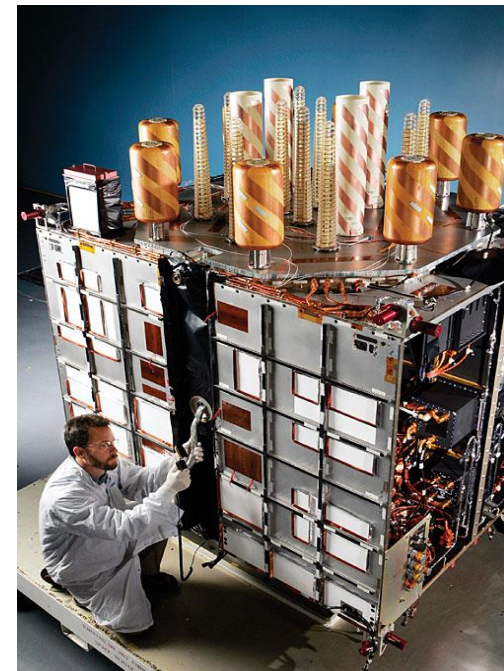
Antennas Design  
Mechanical Engineer  
*GPS III*  
*GOES-R*  
*VINASAT-2*  
*JC-SAT*

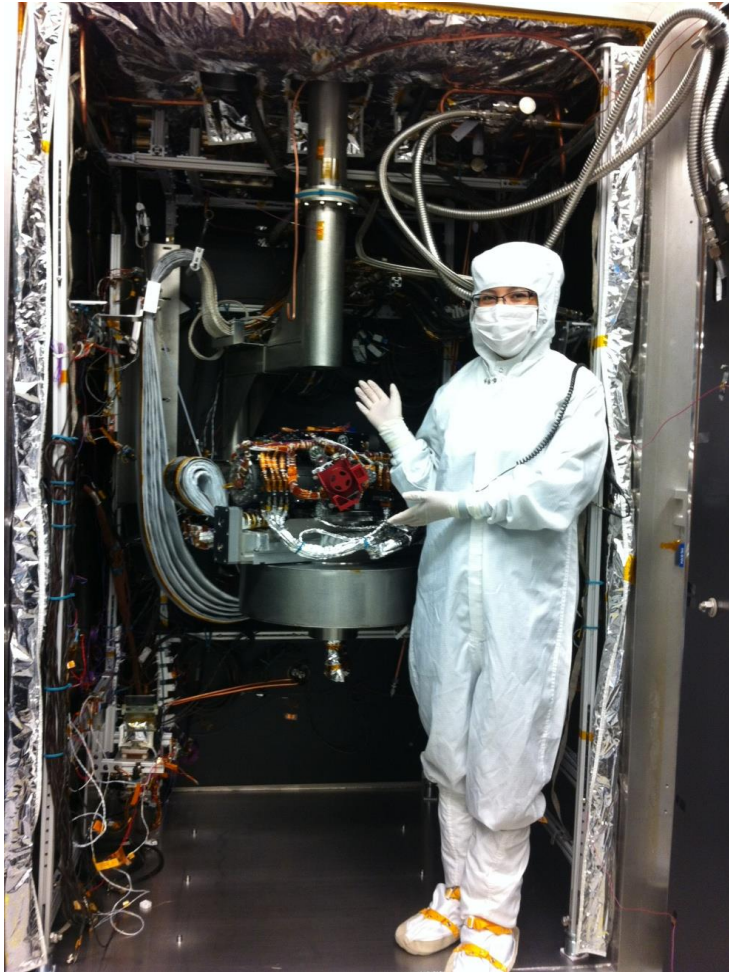


Assembly, Test, and  
Launch Operations  
Systems Integration  
Test Engineer  
*SBIRS*  
*MUOS*  
*B-SAT*



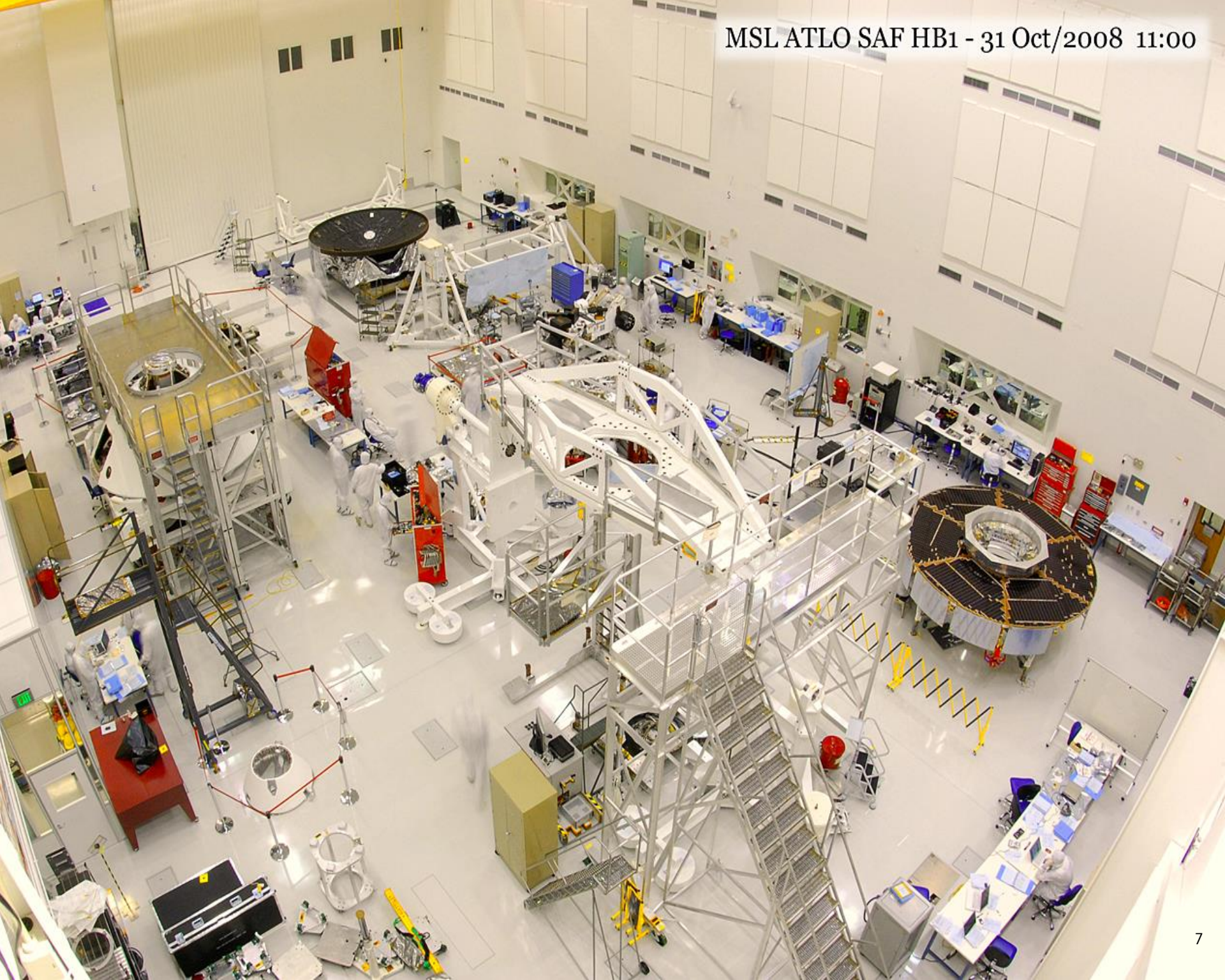
**Stretch**  
**Assignments:**  
Mission Support  
Cubesats  
Metamaterials  
IRAD  
CRAD  
Lean Six Sigma





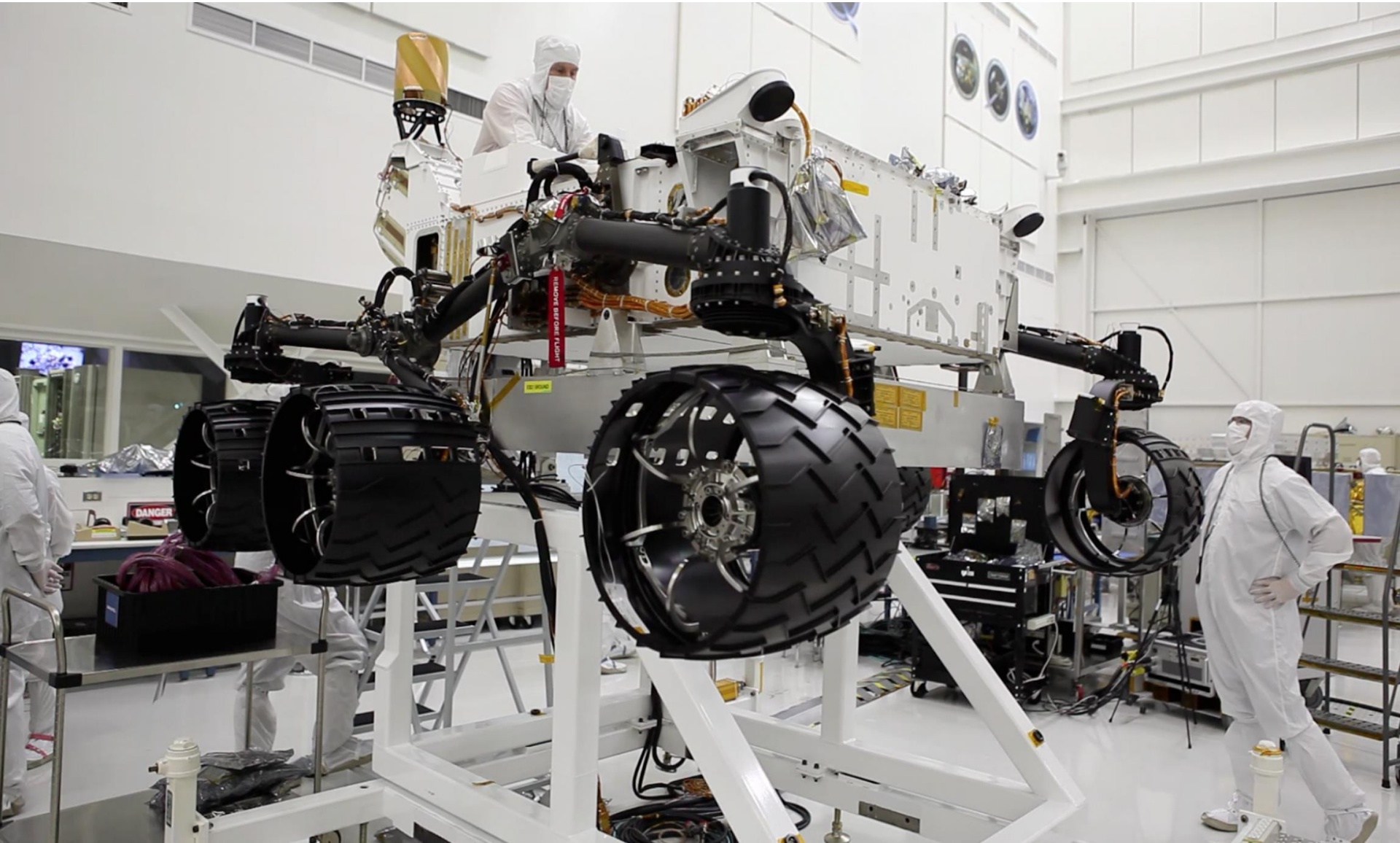
*Mechanical Engineer Test Operator, Robotic Manipulators and Deployable Booms Verification & Validation surface tests for sample acquisition, processing and handling*







# Installation of the Rover Wheels



# Assembled Rover







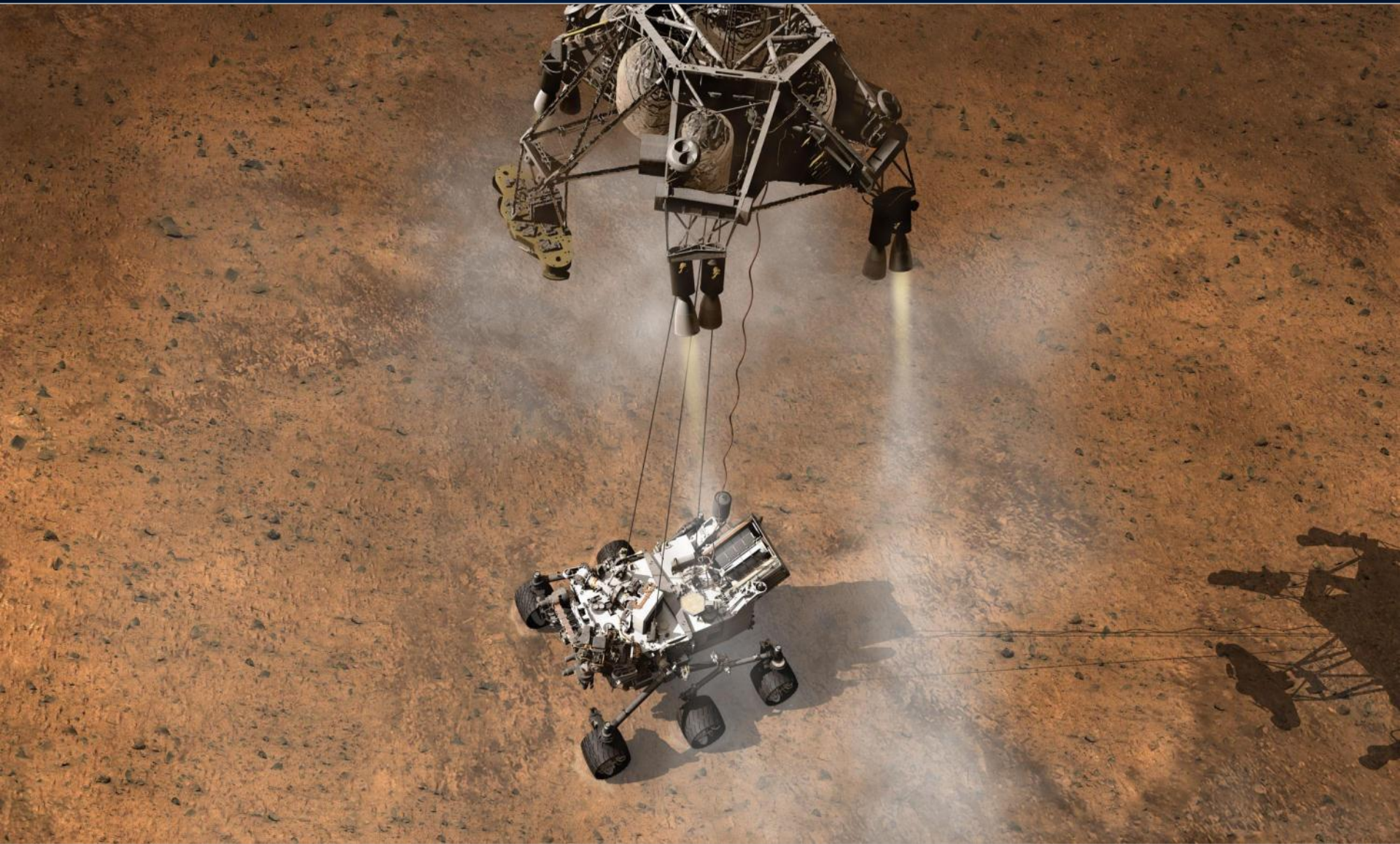
# MSL Launch: Nov 26, 2011







# On August 5, 2012 PDT (Aug. 6 UTC) Curiosity touched down safely on Mars





# Landing Event 8/5/12





# The Rover Family



**Spirit/Opportunity (2004)**

**Sojourner (1997)**

**Curiosity (2011)**

Curiosity is twice the size  
of Mars rovers Spirit and Opportunity  
and five times as heavy.

<b>165 lbs</b>	<b>Instruments</b>	<b>11 lbs</b>
<b>1,982 lbs</b>	<b>Weight</b>	<b>384 lbs</b>

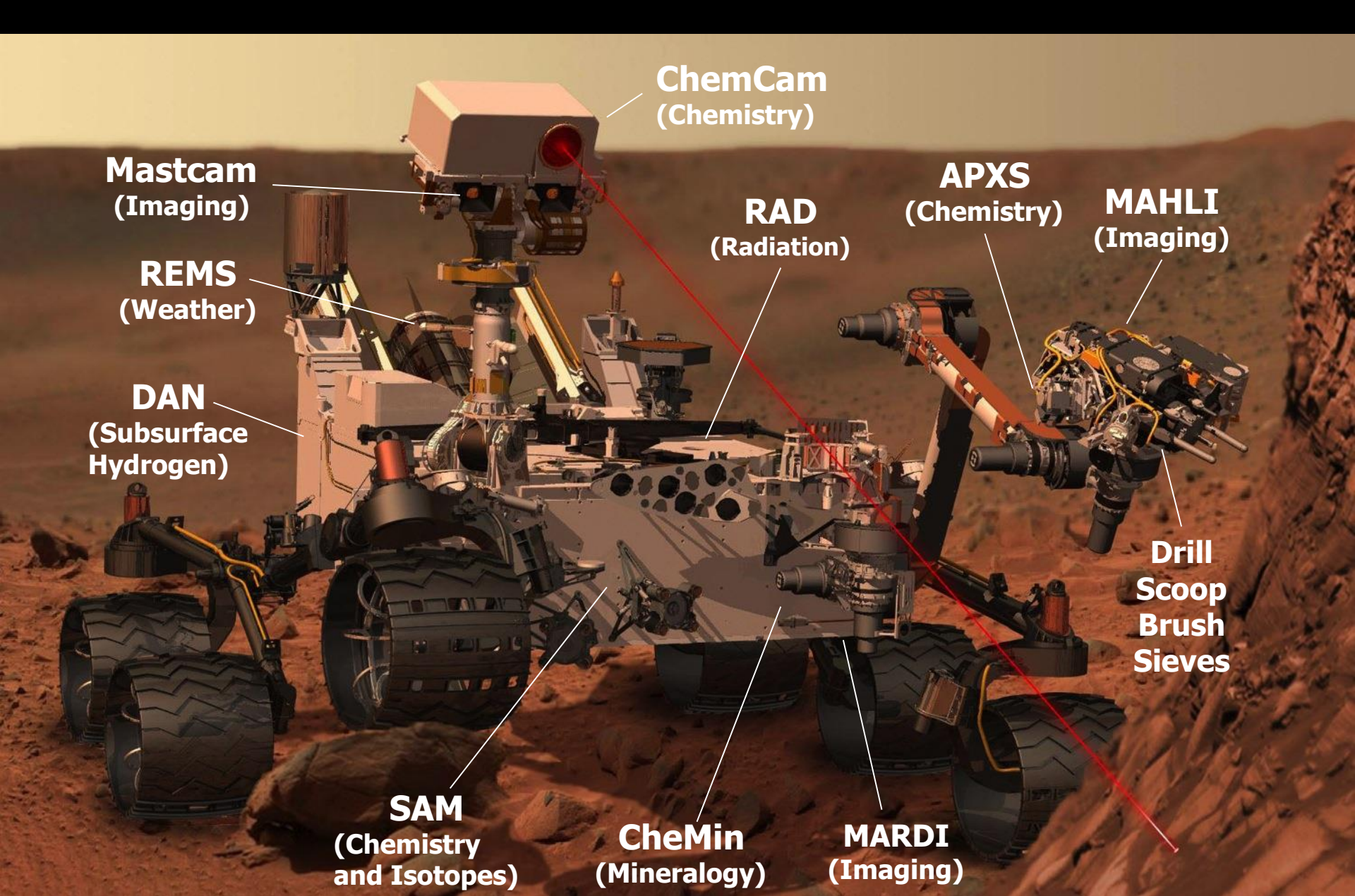


**Curiosity**



**Mars Exploration Rover**





## Curiosity's Science Payload



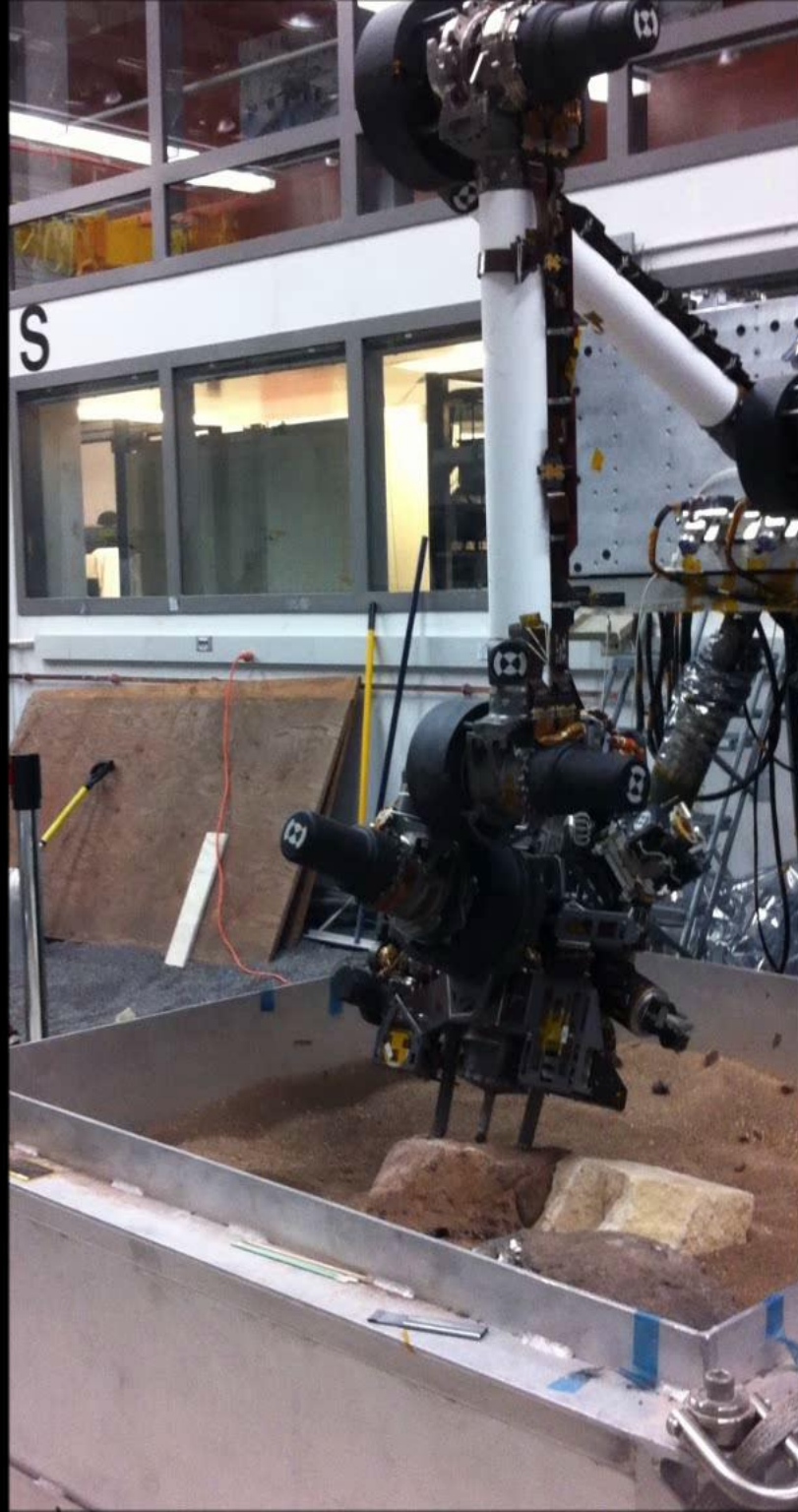
# Rover Traverse

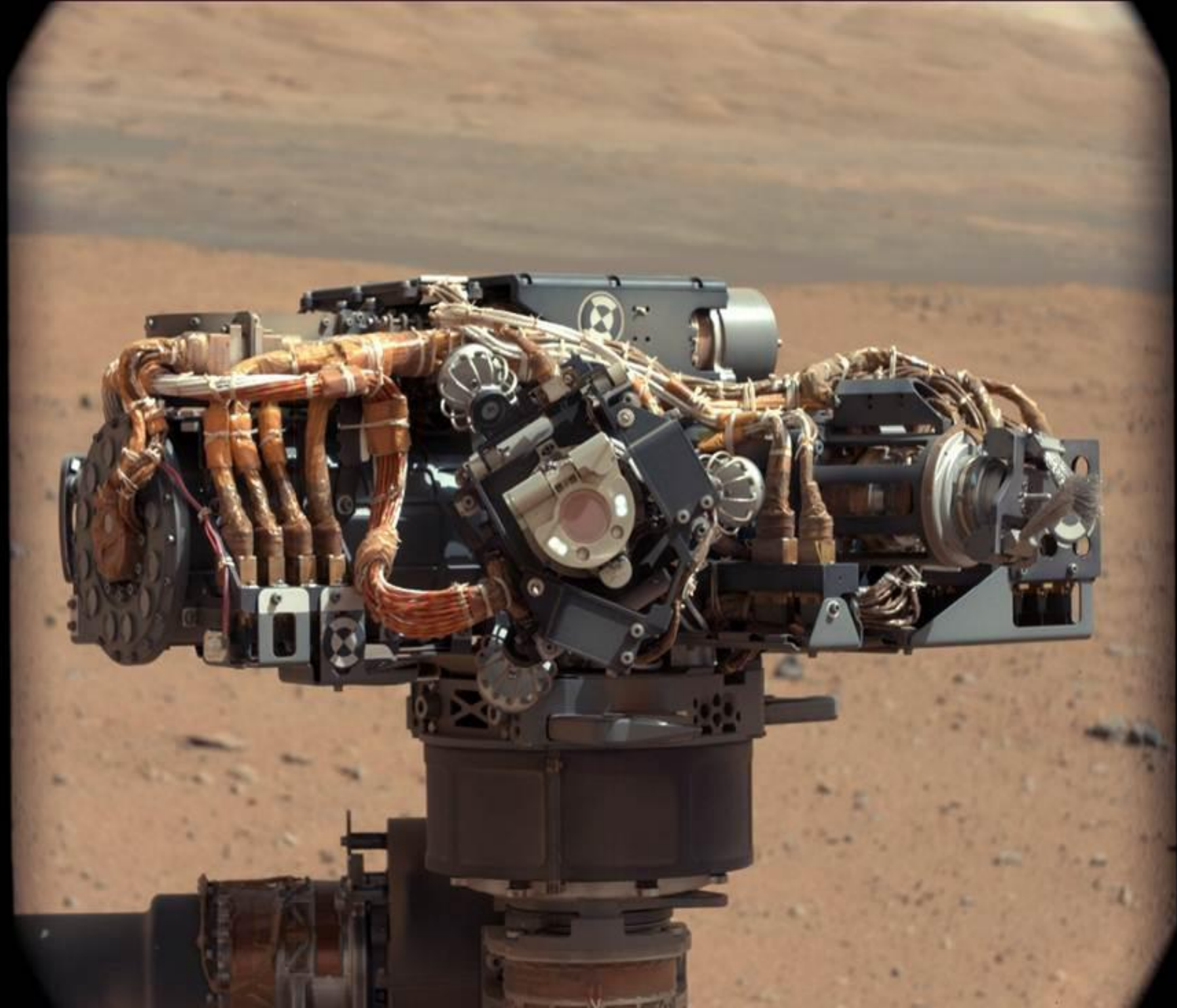


# Arm Operations



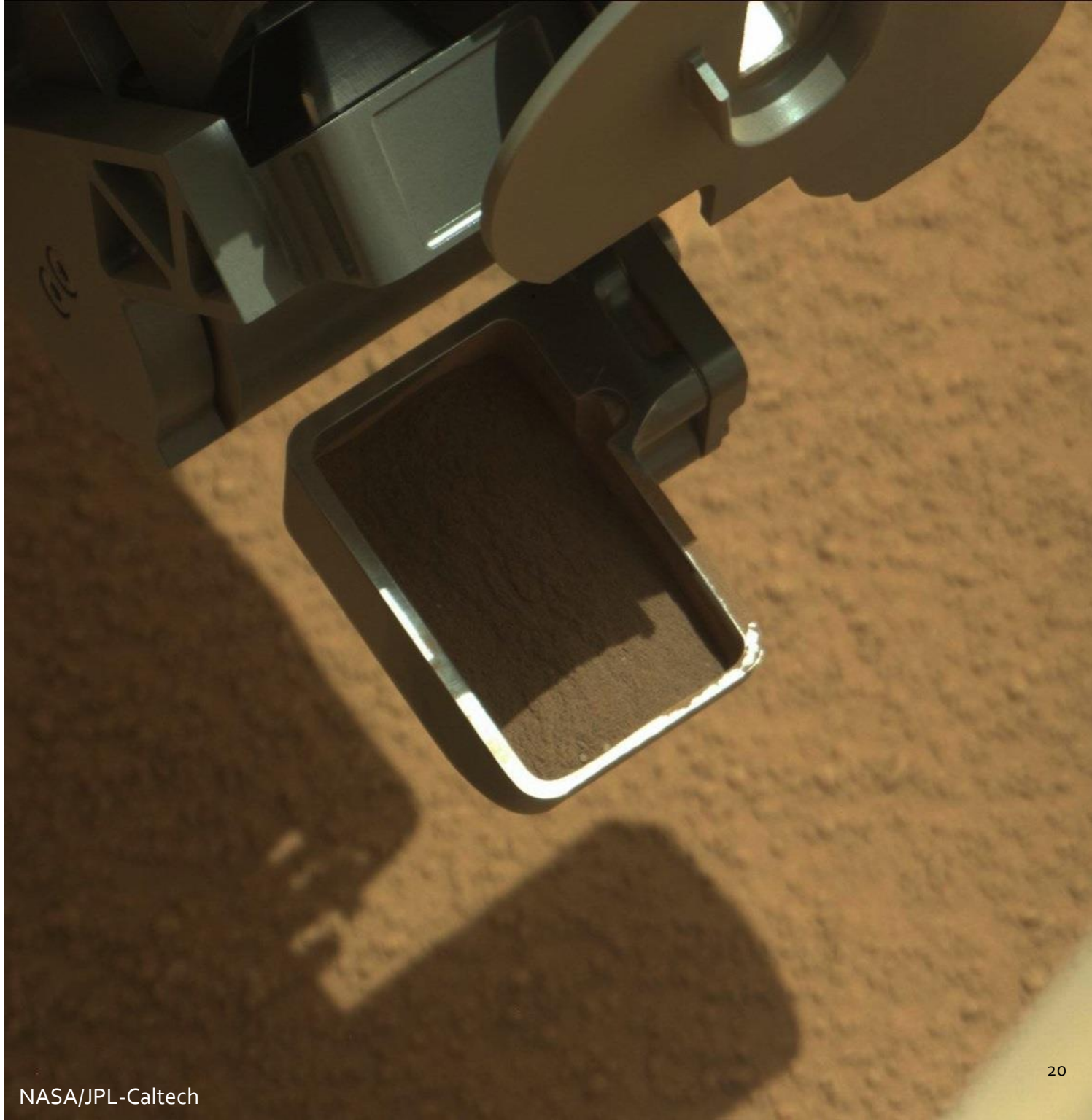








**A scoop  
full of Mars  
sand**





# Curiosity on Rocknest







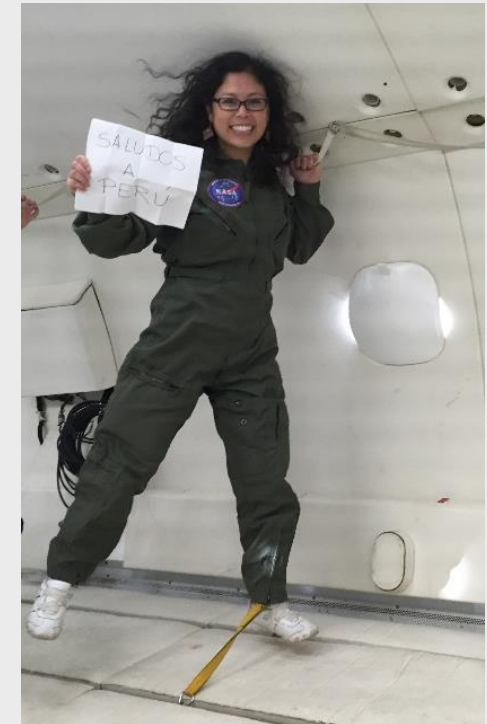




T-38 Display Software Model

J85 Engine Gage Displays and Throttles

J85 Engine Tach Generator &  
T5 Resistance Tester





## Human Factors and Habitability

- Usability tests
- Human-in-the-loop tests
- Crew survivability





# Docking Hatch Opening HITL

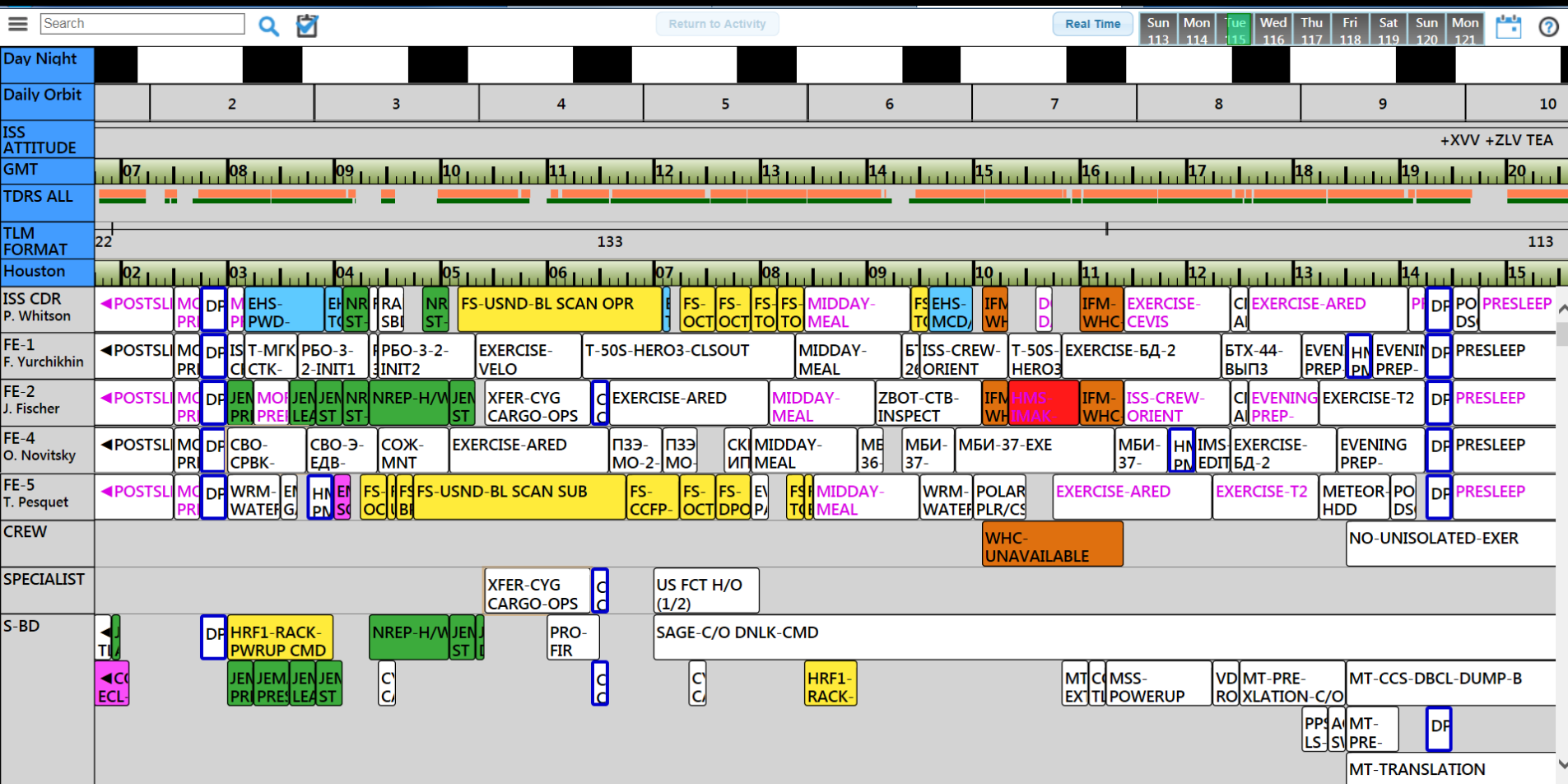


<https://www.youtube.com/watch?v=X-lokatihQo&feature=youtu.be>



# Mission Planning Operations













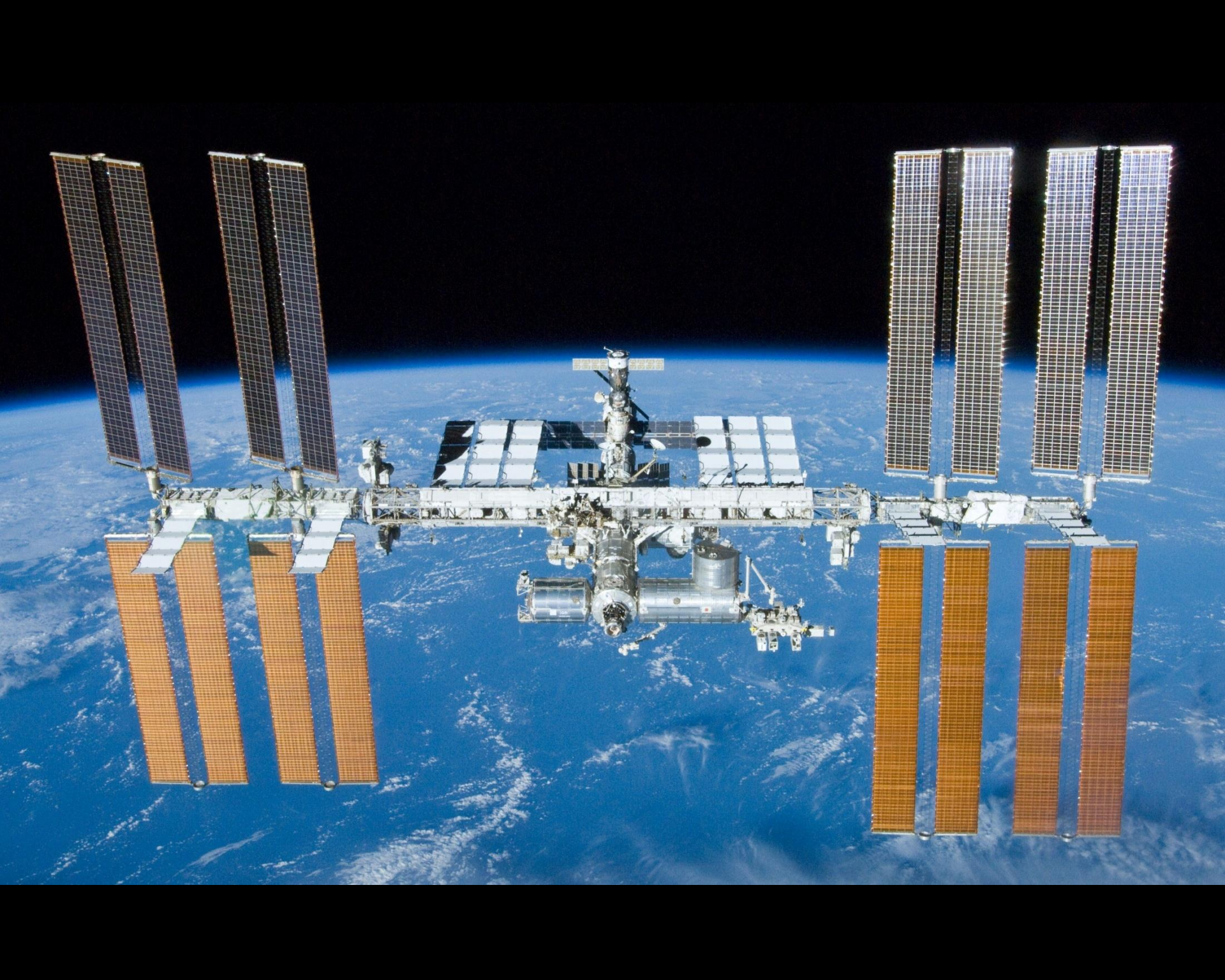














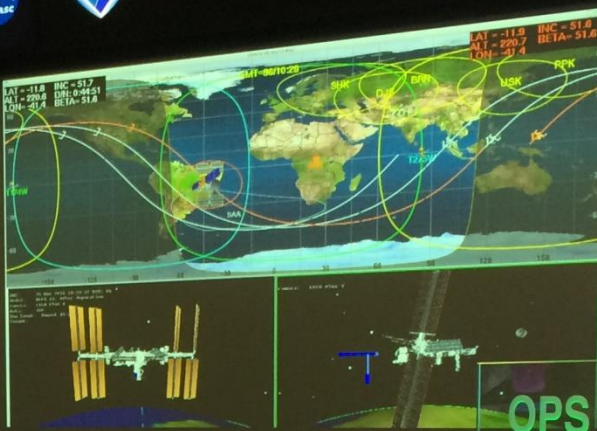


# MISSION CONTROL CENTER



ISS MET ST YES- +027:01:07:17  
ISS MET ST NO- +001:23:16:18  
ISS MET ST YES- +001:13:02:49  
ISS MET ST NO- +001:07:23:35

086:10:20:27  
081:24:38  
086:10:20:27  
081:24:38  
086:10:20:27  
081:24:38



Command	Unit	Time	Status
14274	ISS	086:10:27:16	MOI-DORSC
14274	ISS	086:10:27:16	Command Accepted
14273	ISS	086:10:27:06	Rx_Comm_Unit1_Stop_Dump_of_Record
14273	ISS	086:10:27:06	Command Accepted
14273	ISS	086:10:27:01	2016:086:10:11:36:2016:086:10:12
14272	ISS	086:10:26:41	2016:086:10:11:36:2016:086:10:12
14272	ISS	086:10:26:41	Command Accepted
14271	ISS	086:10:26:21	2016:086:10:11:36:2016:086:10:12
14271	ISS	086:10:26:21	Command Accepted
14270	ISS	086:10:25:45	Rx_Comm_Unit1_Stop_Dump_of_Record
14270	ISS	086:10:25:45	Command Accepted
14269	ISS	086:10:25:24	2016:086:10:11:36:2016:086:10:12
14269	ISS	086:10:25:24	Command Accepted
14268	ISS	086:10:25:05	2016:086:10:11:36:2016:086:10:12
14268	ISS	086:10:25:05	Command Accepted
14267	ISS	086:10:24:45	2016:086:10:11:36:2016:086:10:12
14267	ISS	086:10:24:45	Command Accepted
Flight	DSS	Vehicle	USGS

SPARTAN

OPS PLANNER





*Welcome Jackelynnne to CO7 Flight  
Planning and Procedures*





# Hobbies

- AIAA Young Professionals Council
- AIAA Space Architecture Technical Committee
- SGAC (Space Generation Advisory Council for the UNCOPUOS)
- IAF Workforce Development and Young Professionals Committee



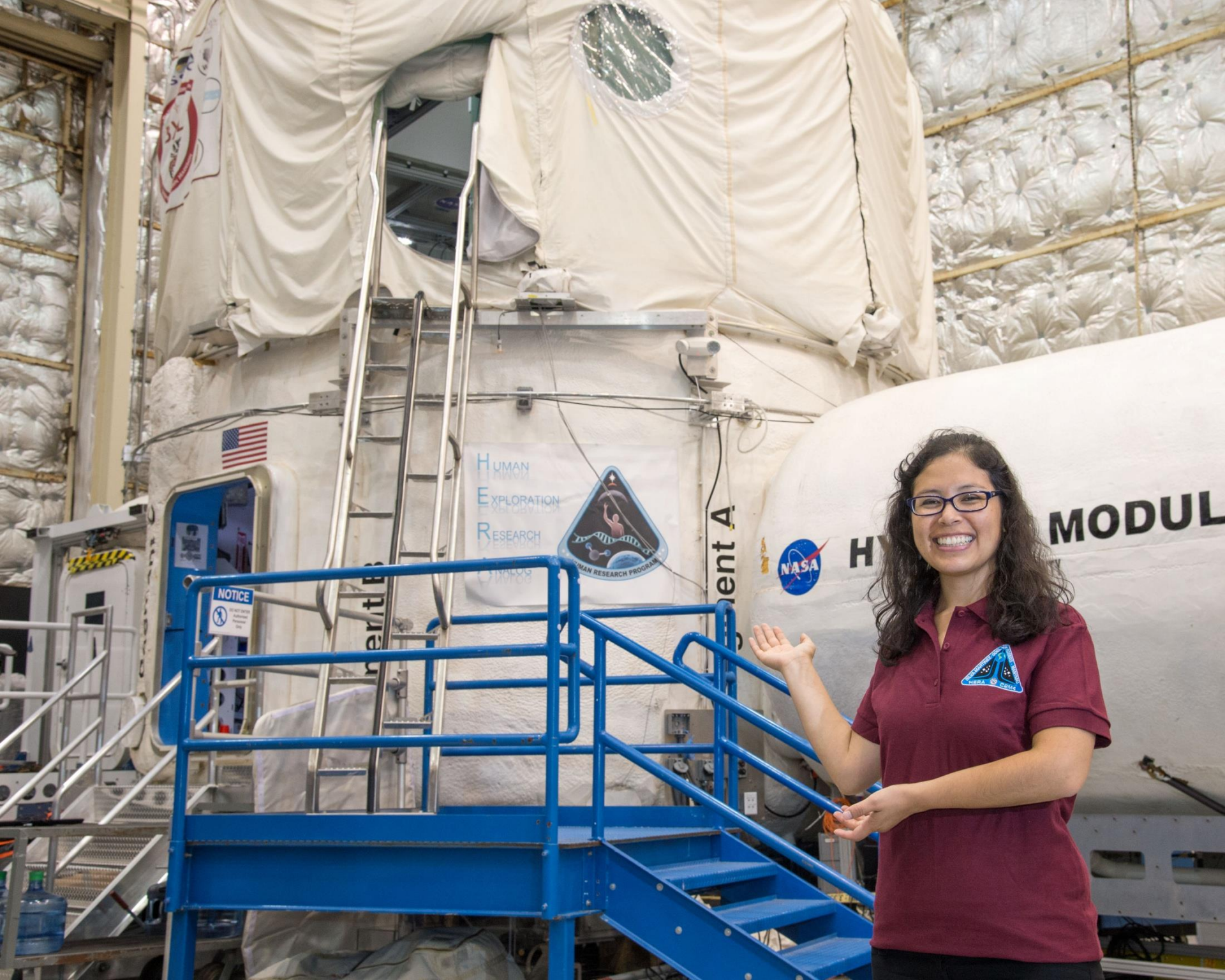














# Segment C







Segment D

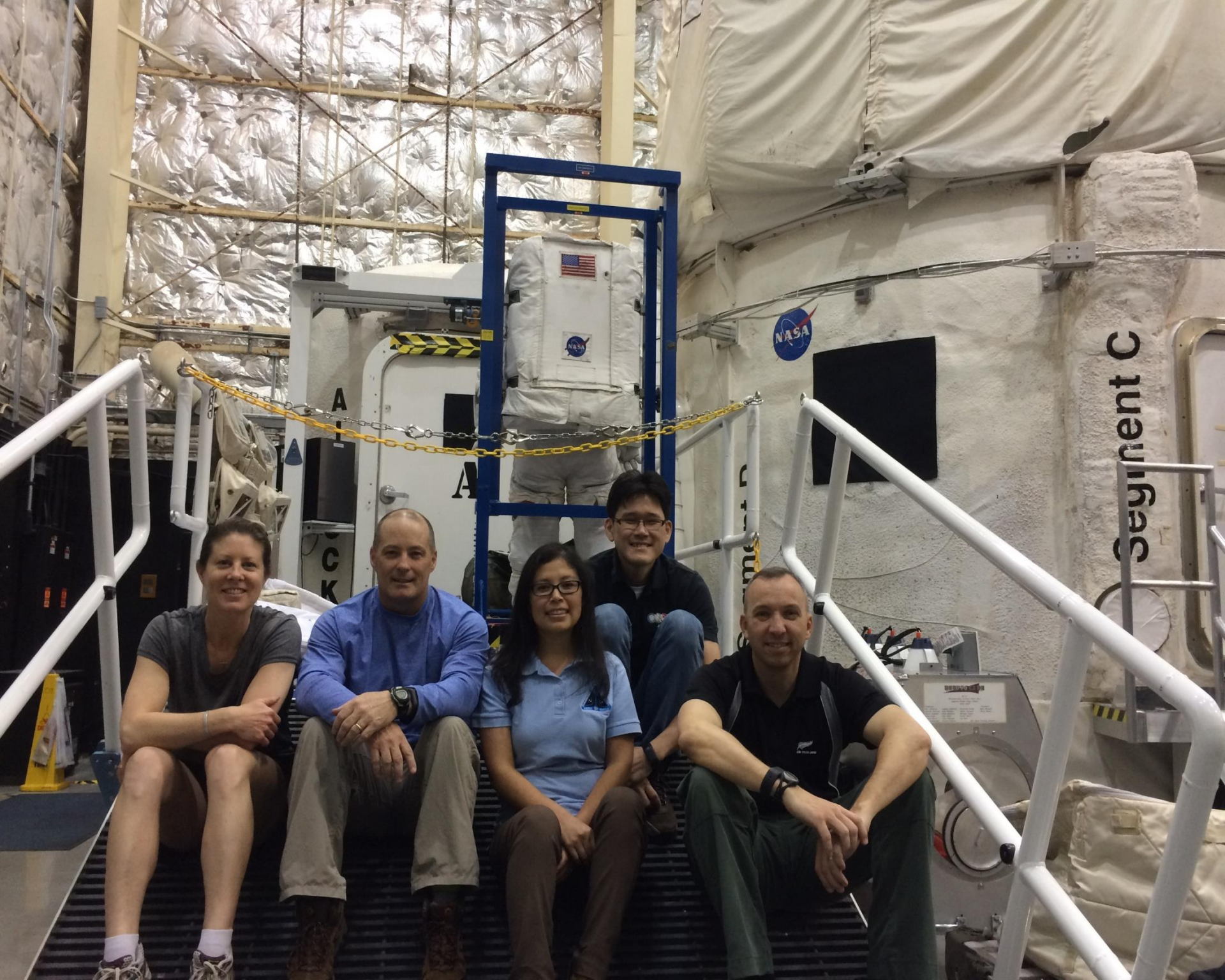
Segment C



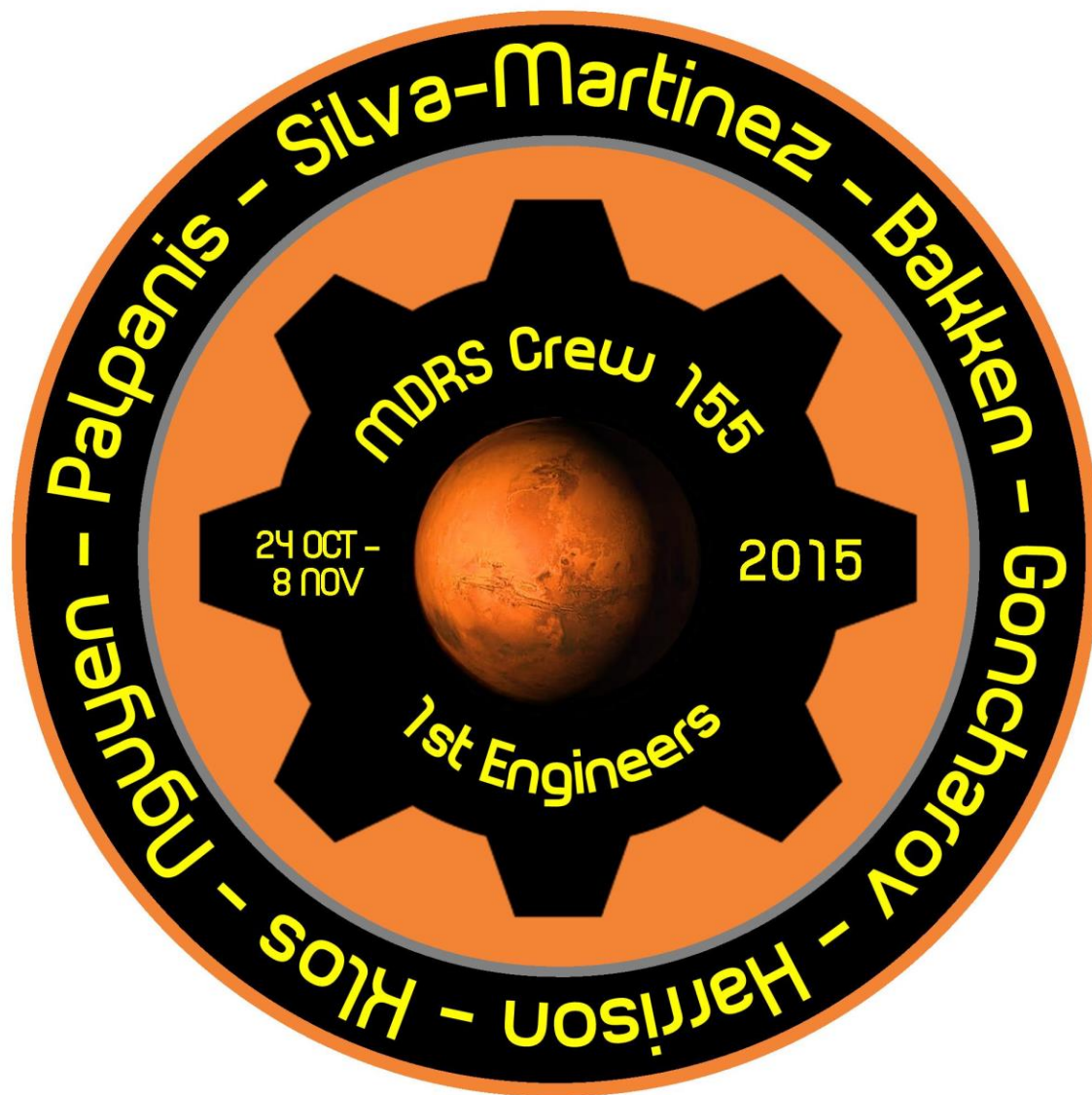






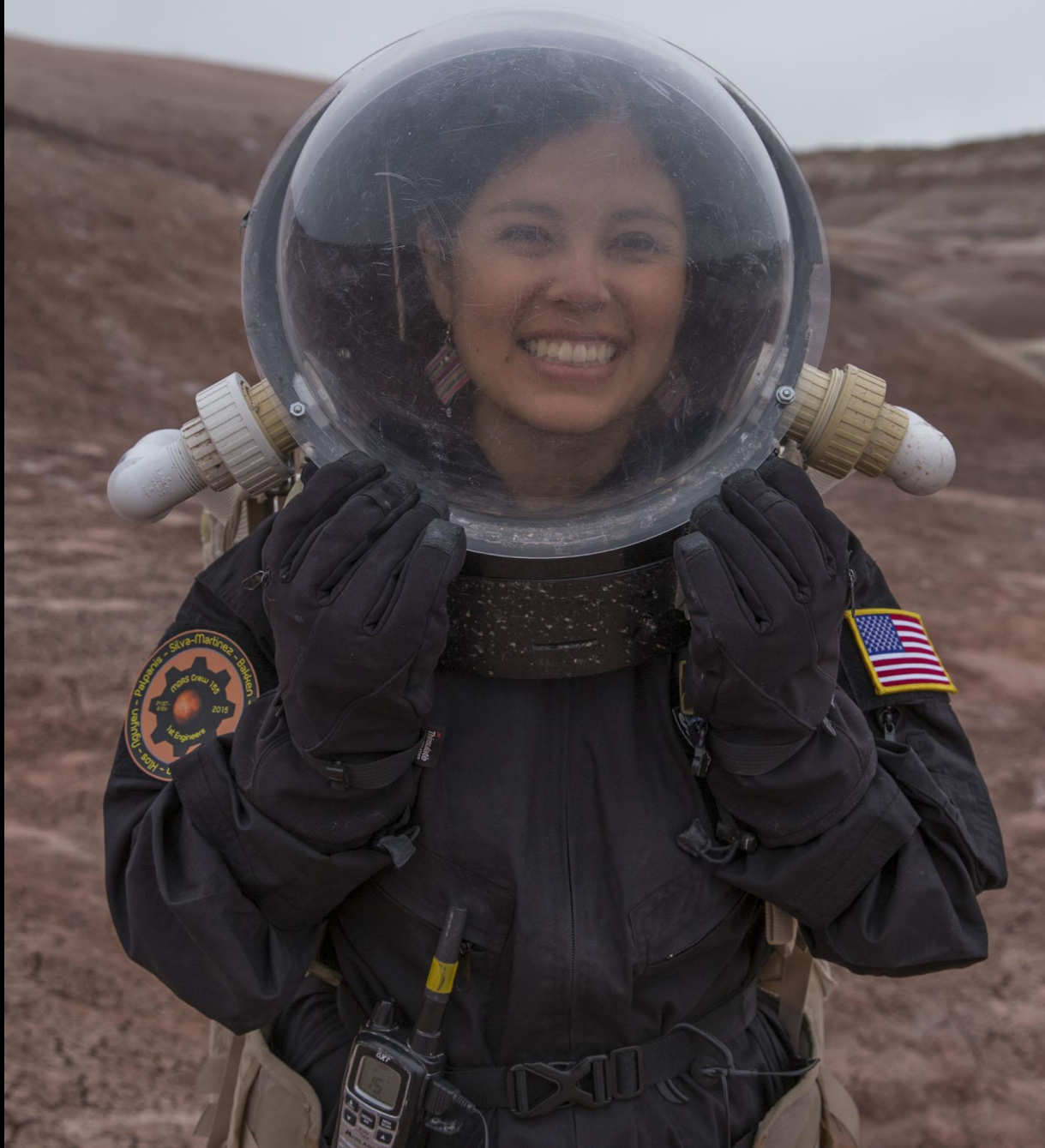








# MDRS Crew 1 Executive Off





**MDRS Crew 155**  
**Executive Officer**





**MDRS Crew 155**  
**Executive Officer**











# Points to Remember

- Do good in school and go for higher education
- Get involved in school activities, emphasis on leadership
- Apply for scholarships/internships/programs
- Never forget your roots
- School doesn't make the students, it's the students who make the school
- Set a short-term plan, and long-term plan, and be open to change
- Follow your dreams, little by little you will get there
- Discover your passion
- Be the best at what you do!



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Keep Exploring!  
Sigan Explorando!

Thank you!  
¡ Gracias !

